

FIG. 1

One shot
401

FIG. 2

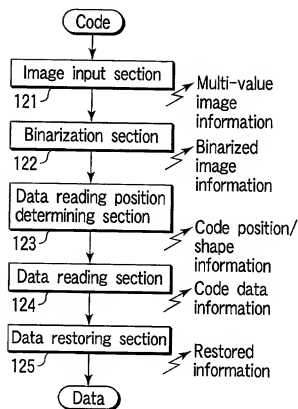


FIG. 3

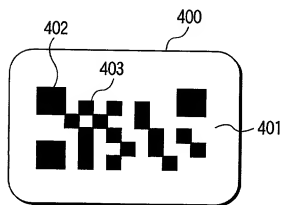


FIG. 4

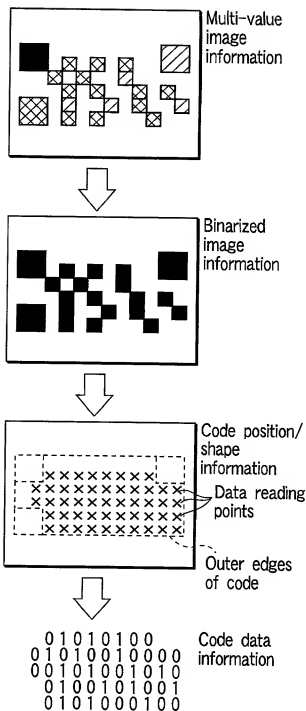


FIG. 5

Code position/shape information

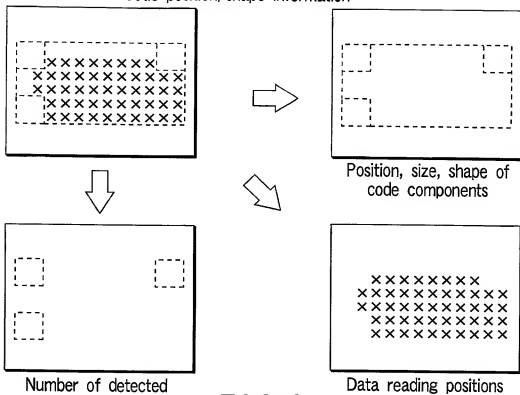


FIG. 8

Code data information

```

0 1 0 1 0 1 0 0
0 1 0 1 0 0 1 0 0 0 0
0 0 1 0 1 0 0 1 0 1 0
0 1 0 0 1 0 1 0 0 1
0 1 0 1 0 0 0 1 0 0

```



Number of 0s, number of 1s
 Number of inverted 0s and 1s
 Data length
 Number of 0s and 1s in a predetermined length

FIG. 9

Restored information

"This code is"



Type of information (image, text, sound, ...)
 Length of information (number of bytes, time, ...)
 Contents of information (producer, ID, ...)

FIG. 10

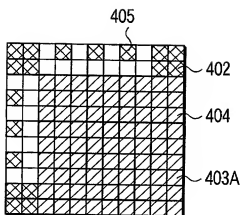


FIG. 11
PRIOR ART

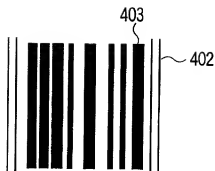


FIG. 12
PRIOR ART

FIG. 13
PRIOR ART

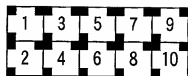
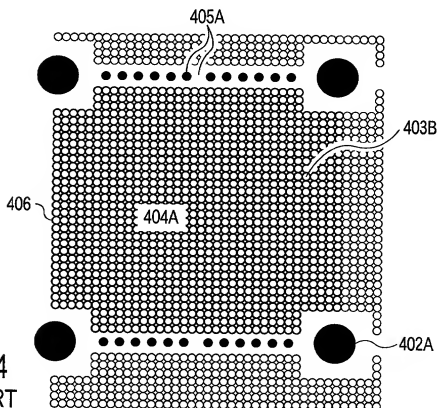


FIG. 14
PRIOR ART



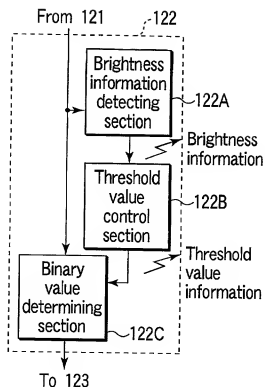


FIG. 15

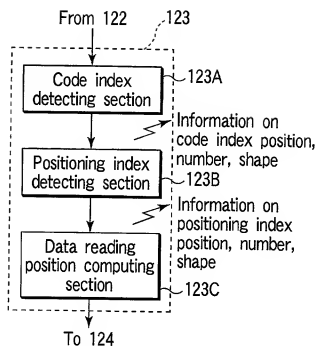


FIG. 16

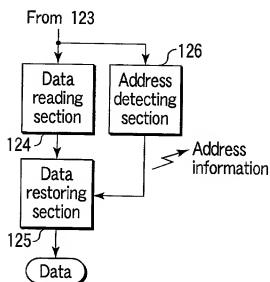


FIG. 17

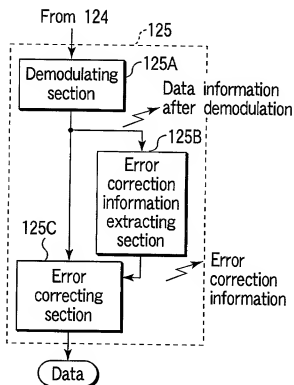
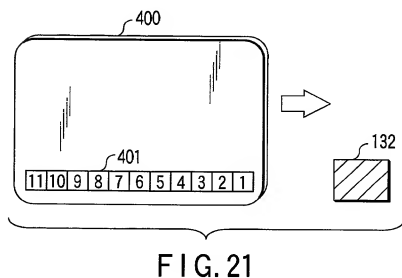
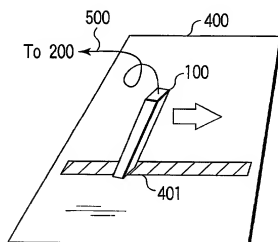
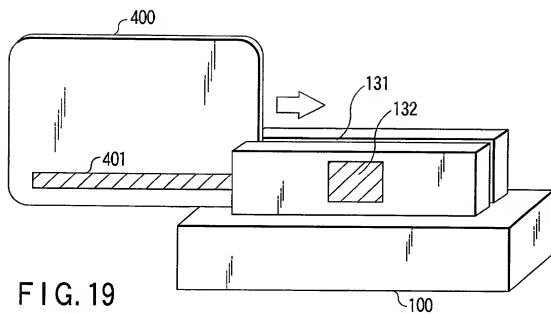


FIG. 18



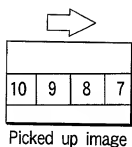


FIG. 26

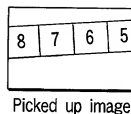


FIG. 27

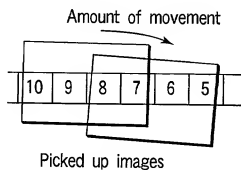
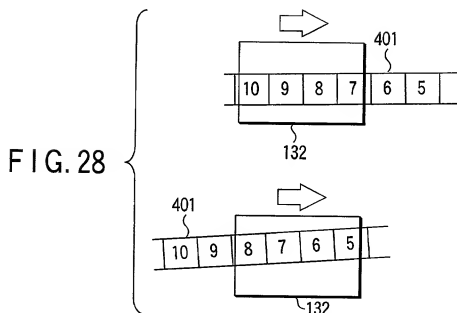


FIG. 29

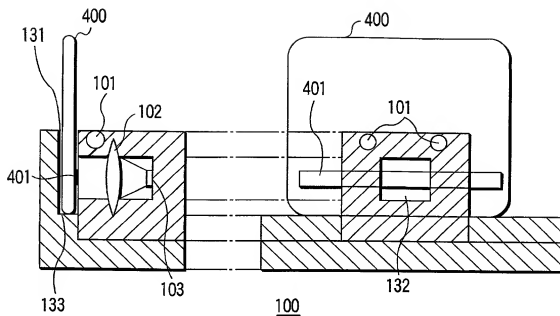
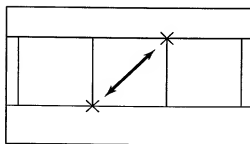
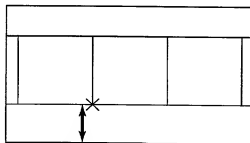


FIG. 31



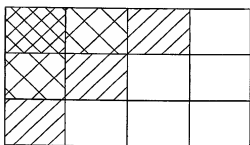
Parameter relating to
lens magnification

FIG. 32



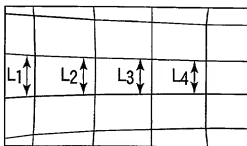
Parameter relating to
guide position

FIG. 33



Parameter relating to
lighting condition

FIG. 34



Parameter relating to
distortion

FIG. 35

Detected information	Acquired parameter	Parameter relating to code reading operation	Parameter relating to way of reading code	Parameter relating to recording medium	Parameter relating to code reading apparatus
Environment information	Reading environment (temperature; humidity; time; position; atmospheric pressure)	○			○
	Power supply rising time; supply voltage				○
	Maximum brightness (suspension, tilt; lighting intensity, sensor sensitivity; reflectivity)	○	○	○	○
	Minimum brightness (suspension, tilt; lighting intensity, sensor sensitivity; reflectivity)	○	○	○	○
	Average brightness (suspension, tilt; lighting intensity, sensor sensitivity; reflectivity)	○	○	○	○
	Brightness distribution (suspension, tilt; lighting intensity, sensor sensitivity; reflectivity)	○	○	○	○
	Average brightness of predetermined region	○	○	○	○
	Ratio of maximum brightness/minimum brightness (density)				○
	Brightness of code components	○	○	○	○

FIG. 36A

Code data information	Data reading positions		
	Number of black dots; number of white dots		
	Black/white ratio		
	Data length		
	Number of read blocks		
Demodulated data information	Number of 1s; number of 0s		
	1/0 ratio		
Error correction information	Number of corrected errors (missing data)		
	Positions of corrected errors		
Restored information	ID; producer; type of information		
	Recording time; amount of data		
Relative movement information	Moving speed		
	Moving direction		
	Number of movements		
	Meandering		
	Time spent from command input to shooting of code at predetermined		

○ represents particularly effective parameter

FIG. 36C

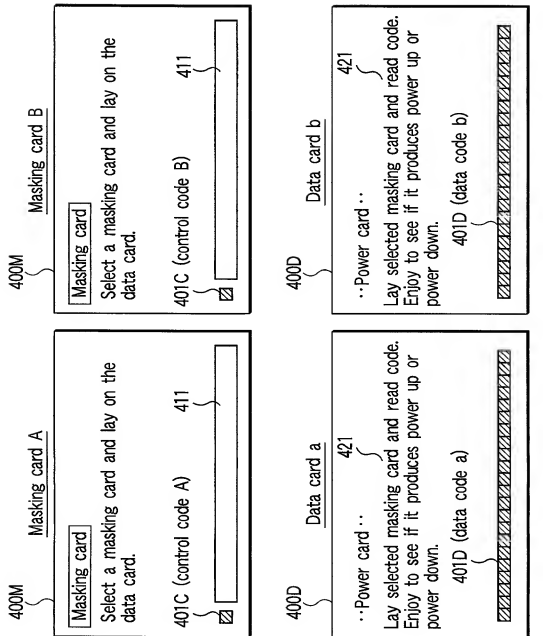


FIG. 37

FIG. 38

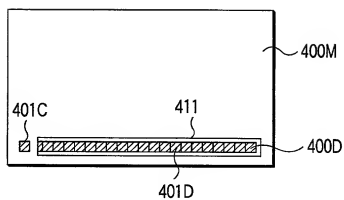


FIG. 39

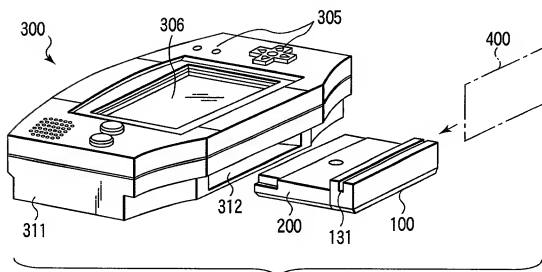
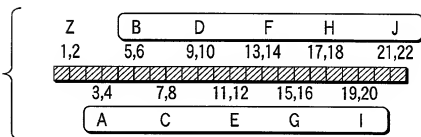


FIG. 40

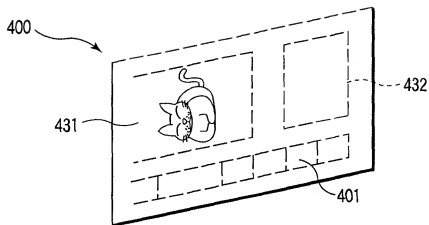


FIG. 41

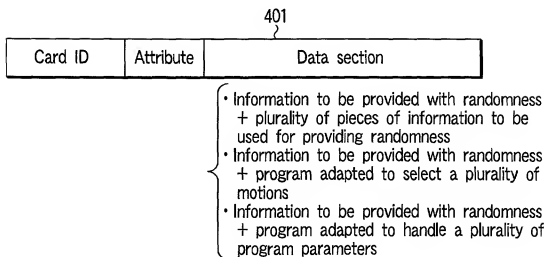


FIG. 42

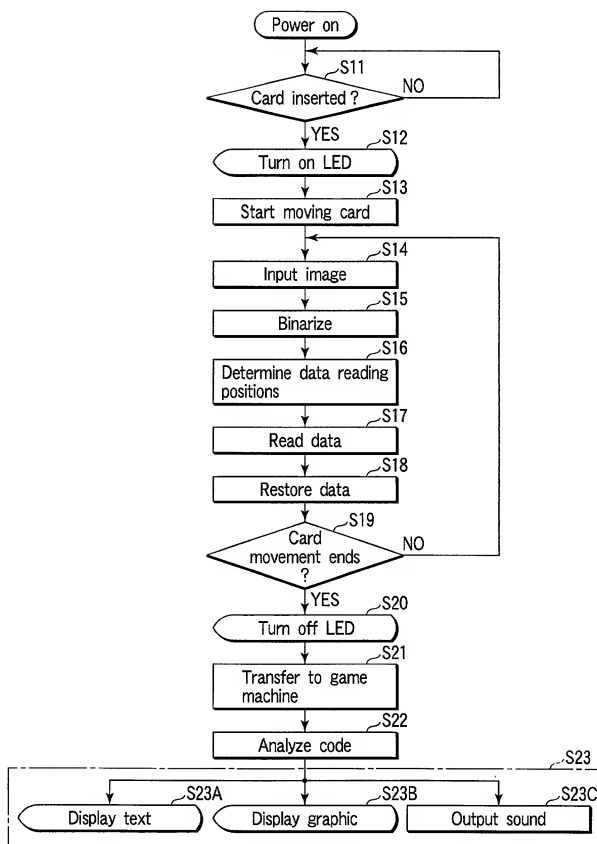


FIG. 43

Error rate [0]
Animation pattern [0]
Error rate [1]
Animation pattern [1]
⋮
Error rate [n]
Animation pattern [n]

201(202)

Speed

1~10

11~20

21~30

31~40

⋮

⋮

70
20
60
50
⋮
⋮

201

FIG. 44

FIG. 50

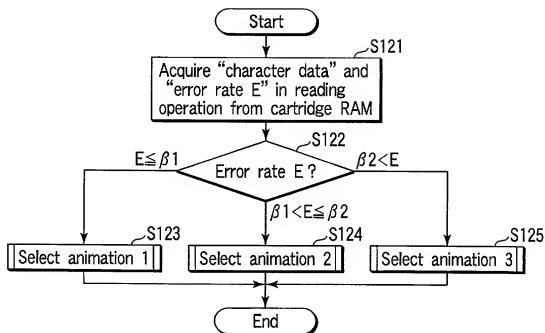


FIG. 46

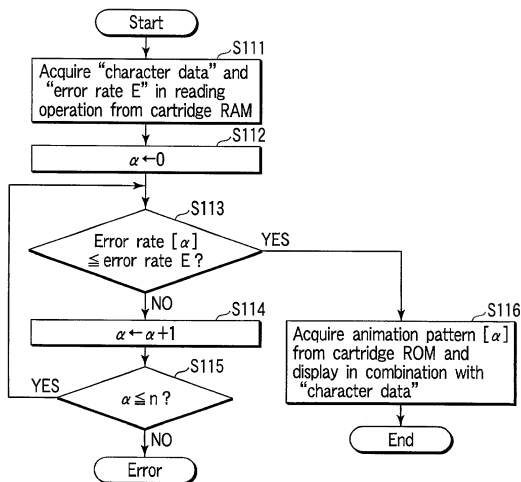


FIG. 45

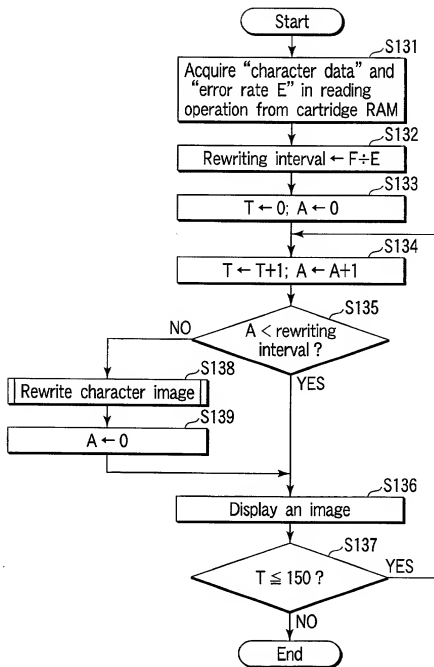


FIG. 47

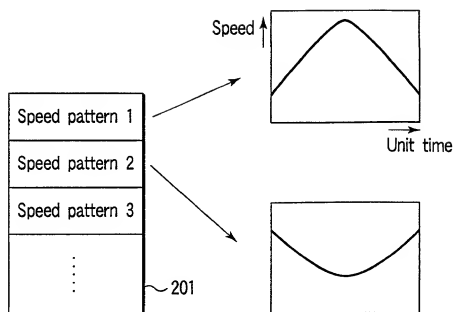


FIG. 48

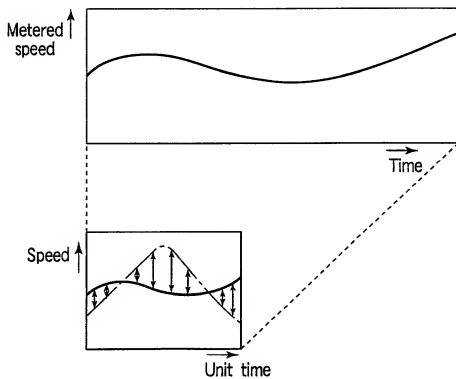


FIG. 49